Message

From: Davis, Eva [Davis.Eva@epa.gov]
Sent: 5/2/2017 2:04:38 PM
To: Dan Pope [DPope@css-inc.com]; d'Almeida, Carolyn K. [dAlmeida.Carolyn@epa.gov]; Cosler, Doug [DCosler@TechLawInc.com]; Wayne Miller [Miller.Wayne@azdeq.gov]; Steve Willis [steve@uxopro.com]; Bo Stewart [Bo@Praxis-Enviro.com]; Jennings, Eleanor [Eleanor.Jennings@parsons.com]; Brasaemle, Karla [KBrasaemle@TechLawInc.com]
Subject: RE: Phased implementation of EBR

This looks like good stuff to me – just the type of criteria we will likely need if they're going forward with EBR

From: Dan Pope [mailto:DPope@css-inc.com]
Sent: Monday, May 01, 2017 3:06 PM
To: d'Almeida, Carolyn K. <dAlmeida.Carolyn@epa.gov>; Davis, Eva <Davis.Eva@epa.gov>; Cosler, Doug <DCosler@TechLawInc.com>; Wayne Miller <Miller.Wayne@azdeq.gov>; Steve Willis <steve@uxopro.com>; Bo Stewart <Bo@Praxis-Enviro.com>; Jennings, Eleanor <Eleanor.Jennings@parsons.com>; Brasaemle, Karla <KBrasaemle@TechLawInc.com>
Subject: RE: Phased implementation of EBR

I'm all for microbial monitoring. It just needs to be justified like all other monitoring would be justified.

For example, if we can say:

> *For this particular measure (Analysis A) of microbes, we expect that the possible range of analytical results are from 0 to 10E6.*
>
> *If the analytical results are in the range 0 to 10E3, then there are too few of those microbes, and we recommend specific actions 1, 2, and 3 to cause the microbe population to increase to the desired range.*
>
> *If the analytical results are in the range 10E4 to 10E6, then the population of those microbes is in an acceptable range, and no action is recommended.*
>
> Or, perhaps:
>
> *The pre-EBR implementation results were in the 10E2 range, and after sulfate injection the results were similar – so it appears sulfate injection has not affected these (needed!) microbes. This is undesirable, because the EBR depends on high populations of these microbes. We recommend specific actions 4, 5, and 6.*
>
> *The pre-EBR implementation results were in the 10E2 range, and after sulfate injection the results were 10E6 – so it appears sulfate injection has caused (or is related to the change, at least) these microbes to significantly increase their population, indicating that we are likely to get the COC degradation results we're looking for.*

And so on….

If we cannot say, for any given analysis, a) that the range of possible results is from this to that, b) the range we want to see is such and such, and c) therefore based on the actual results, we recommend specific actions 7, 8, and 9 – then we have no use for the analysis.

From: d'Almeida, Carolyn K. [mailto:dAlmeida.Carolyn@epa.gov]
Sent: Monday, May 01, 2017 12:02 PM
To: Davis, Eva; Dan Pope; Cosler, Doug; Wayne Miller; Steve Willis; Bo Stewart; Jennings, Eleanor; Brasaemle, Karla
Subject: RE: Phased implementation of EBR

I'm back from my emergency response, just now have time to read this tread. It may be too late to chime in, but, perhaps monitoring of microbial populations should be part of the long term monitoring strategy.

Carolyn d'Almeida
Remedial Project Manager
Federal Facilites Branch (SFD 8-1)
US EPA Region 9
(415) 972-3150

"Because a waste is a terrible thing to mind..."

From: Davis, Eva
Sent: Wednesday, April 19, 2017 2:13 PM
To: Dan Pope <DPope@css-inc.com>; Cosler, Doug <DCosler@TechLawInc.com>; Wayne Miller <Miller.Wayne@azdeq.gov>; Steve Willis <steve@uxopro.com>; Bo Stewart <Bo@Praxis-Enviro.com>; Jennings, Eleanor <Eleanor.Jennings@parsons.com>; Brasaemle, Karla <KBrasaemle@TechLawInc.com>; d'Almeida, Carolyn K. <dAlmeida.Carolyn@epa.gov>
Subject: RE: Phased implementation of EBR

Well, there is their fine decision tree – the light blue box on page 1 shows 30000 mg/l as being non-inhibiting, the footnote would make me think this is just their guess. This is an order of magnitude lower concentration than what they want to inject at. Figures in Addendum 2 showed that during the diffusive stage, these high concentrations would cover a significant area. But also – would that not cause other geochemical changes that would likely affect the bugs? You and Eleanor have both talked about the resilience of the bugs, but the yellow box of the decision tree also states that rapid temperature changes (greater than 1 F/day) may lead to instability and population changes – it seems to me the bugs are 'resilient' or maybe not -

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From: Dan Pope [mailto:DPope@css-inc.com]
Sent: Wednesday, April 19, 2017 4:02 PM
To: Davis, Eva <Davis.Eva@epa.gov>; Cosler, Doug <DCosler@TechLawInc.com>; Wayne Miller <Miller.Wayne@azdeq.gov>; Steve Willis <steve@uxopro.com>; Bo Stewart <Bo@Praxis-Enviro.com>; Jennings, Eleanor <Eleanor.Jennings@parsons.com>; Brasaemle, Karla <KBrasaemle@TechLawInc.com>; d'Almeida, Carolyn K. <dAlmeida.Carolyn@epa.gov>
Subject: RE: Phased implementation of EBR

Inhibition of microbial activity seems likely right around the injection point temporarily, but past that? I'd like to see some field data. Remember – we just got through boiling the bugs, but I fully expect that the bugs will spring back quickly as the site cools down. Bug populations are very resilient.

We have lots of good ideas in all the things that our team has put forward, but I'm afraid that when we get in a room together with AF and their consultants, that we're going to be pressed by them to come up with some actual experimental/empirical evidence that what we say is true (i.e., not just "because we think so"), and that what we want to require will actually be helpful for making site decisions. If we can't present that evidence, then we're not going to have much success getting our recommendations incorporated into the plan. And if we can't present convincing evidence to the tech guys, what will we do when the decision-making process moves to decidedly non-tech upper management? How will we convince management?

I know I keep saying these things, but I believe they are true. If we can't strongly back up what we say with convincing evidence for **each** item we want, then it merely becomes something that AF can point to as evidence that we are unreasonable, unhelpful, and uncooperative.

From: Davis, Eva [mailto:Davis.Eva@epa.gov]
Sent: Wednesday, April 19, 2017 3:44 PM
To: Dan Pope; Cosler, Doug; Wayne Miller; Steve Willis; Bo Stewart; Jennings, Eleanor; Brasaemle, Karla; d'Almeida, Carolyn K.
Subject: RE: Phased implementation of EBR

Dan – do you really think that injecting sulfate at 320 gm/l – as they propose in Addendum 2 - will not cause problems for EBR?

From: Dan Pope [mailto:DPope@css-inc.com]
Sent: Wednesday, April 19, 2017 2:31 PM
To: Davis, Eva <Davis.Eva@epa.gov>; Cosler, Doug <DCosler@TechLawInc.com>; Wayne Miller <Miller.Wayne@azdeq.gov>; Steve Willis <steve@uxopro.com>; Bo Stewart <Bo@Praxis-Enviro.com>; Jennings, Eleanor <Eleanor.Jennings@parsons.com>; Brasaemle, Karla <KBrasaemle@TechLawInc.com>; d'Almeida, Carolyn K. <dAlmeida.Carolyn@epa.gov>
Subject: RE: Phased implementation of EBR

A few quick comments in the attached file.

From: Davis, Eva [mailto:Davis.Eva@epa.gov]
Sent: Wednesday, April 19, 2017 12:25 PM
To: Dan Pope; Cosler, Doug; Wayne Miller; Steve Willis; Bo Stewart; Jennings, Eleanor; Brasaemle, Karla; d'Almeida, Carolyn K.
Subject: FW: Phased implementation of EBR

All –

Loren and I have put together a short response to the AF that is to be sent via email today with a path forward for a phased approach to EBR, that would hopefully give us the information we need to determine if it could work. There are a couple of 'placeholders' there for input from the microbiologist – please help me out. I'm requesting a quick turnaround on this, it is to go to the AF today.

Thanks Eva

From: Henning, Loren
Sent: Wednesday, April 19, 2017 12:19 PM
To: Davis, Eva <Davis.Eva@epa.gov>
Cc: d'Almeida, Carolyn K. <dAlmeida.Carolyn@epa.gov>
Subject: RE: Phased implementation of EBR

Thanks Eva. This looks good. I wouldn't make it much longer. Please get the necessary info from the microbiologists so I can send this to AF today.

Loren

From: Davis, Eva
Sent: Wednesday, April 19, 2017 7:42 AM
To: Henning, Loren <Henning.Loren@epa.gov>
Cc: d'Almeida, Carolyn K. <dAlmeida.Carolyn@epa.gov>
Subject: RE: Phased implementation of EBR

Loren – I moved this to a word document to make it easier for the rest of the team to make changes - of course then it can be copied and pasted back into an email. I hope this is the type of information you were looking for – it definitely though needs input from the microbiologists. You know, if they throw out the approach they have in Addendum #2, and go back to the approach outlined in the May 2014 Final Work Plan, we would be a lot closer to allowing them to test it in a larger area -

From: Henning, Loren
Sent: Tuesday, April 18, 2017 3:44 PM
To: Davis, Eva <Davis.Eva@epa.gov>
Subject: Phased implementation of EBR

Here's what I am proposing as a start:

The US Environmental Protection Agency (EPA) and Arizona Department of Environmental Quality (ADEQ), "The Agencies", are in receipt of your February 10, 2017 letter stating Air Force's (AF's) intention to move forward with implementation of the Enhanced Bioremediation (EBR) work plan for ST12, despite the objections raised in our letter to you dated February 8, 2017 and the January 25, 2017 technical responses sent to Cathy Jerrard. The Agencies understand the AF's desire to move forward with implementation of EBR, however, our technical staff still have concerns about some of the basic information on how EBR will be implemented and evaluated as a viable treatment technology. In order to prevent potential long-term adverse impacts from EBR, the Agencies recommend implementing EBR in a phased approach.

The AF, with input provided by the regulatory agencies, would select two location to implement EBR; one location would be in an area of high LNAPL concentration, and another area to be determined. We propose that the primary measure of effectiveness of EBR would be reduction of Benzene concentrations in groundwater. Other measures can be added as appropriate. Empirical data collected before and during implementation of EBR would be used to evaluate its efficacy, and would be the basis for optimizing the system if appropriate.